

(b) Explain how Blend Shapes are used in facial animation, including phonemes and emotional expressions or oscillation. 5

7. Explain constraint conflicts when multiple constraints are applied to a single object. 15



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**B. Sc. (Animation and Multimedia)
(Sixth Semester) 3D Animation (AMU-306-V)/
B. Sc.-AM-23-603)**

Time : 3 Hours]

[Maximum Marks : 75

Note : It is compulsory to answer all the questions (1.5 marks each) of Part A in short. Answer any *four* questions from Part B in detail. Different sub-parts of a question are to be attempted adjacent to each other.

Part A

1. (a) What is the Graph/Curve Editor and dope sheet used for ? 1.5
- (b) How Pole Vector Constraints control knee/elbow direction during animation. 1.5
- (c) What is Timing in animation ? 1.5

- (d) What is a Pole Vector Constraint ? 1.5
- (e) Define Expression Editor and its purpose. 1.5
- (f) Explain Slow In and Slow Out in motion timing. 1.5
- (g) Define Deformers in Maya. 1.5
- (h) Explain Cluster Deformer briefly 1.5
- (i) Explain Squash and Stretch with an example from character animation 1.5
- (j) What is Follow Through and Overlapping Action ? 1.5

Part B

- 2. (a) Design an animation where a character picks and throws a ball using constraints and keyframes. 10
- (b) Explain how Parent, Point and Orient constraints are used together in animating object interaction 5

- 3. (a) Compare linear, spline, and stepped interpolation and their impact on motion style. 5
- (b) Compare real-time animation (games) vs. film animation workflows with respect to tools and techniques. 10
- 4. Compare deformation techniques in animation for organic vs. mechanical models, highlighting challenges and solutions. 15
- 5. (a) Design a walk cycle animation and explain where each of the 12 principles is applied in the cycle. 5
- (b) Design a workflow to reuse animation clips efficiently using nonlinear animation tools like the Trax Editor 10
- 6. (a) Explain how jiggle deformers simulate secondary motion using physical principles like inertia and damping. 10